

# Mortality of King Salmon Caught and Released Using Sport Tackle in the Nushagak River

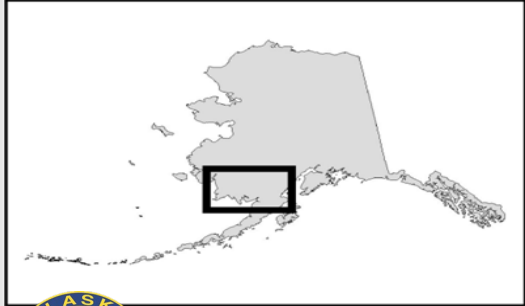
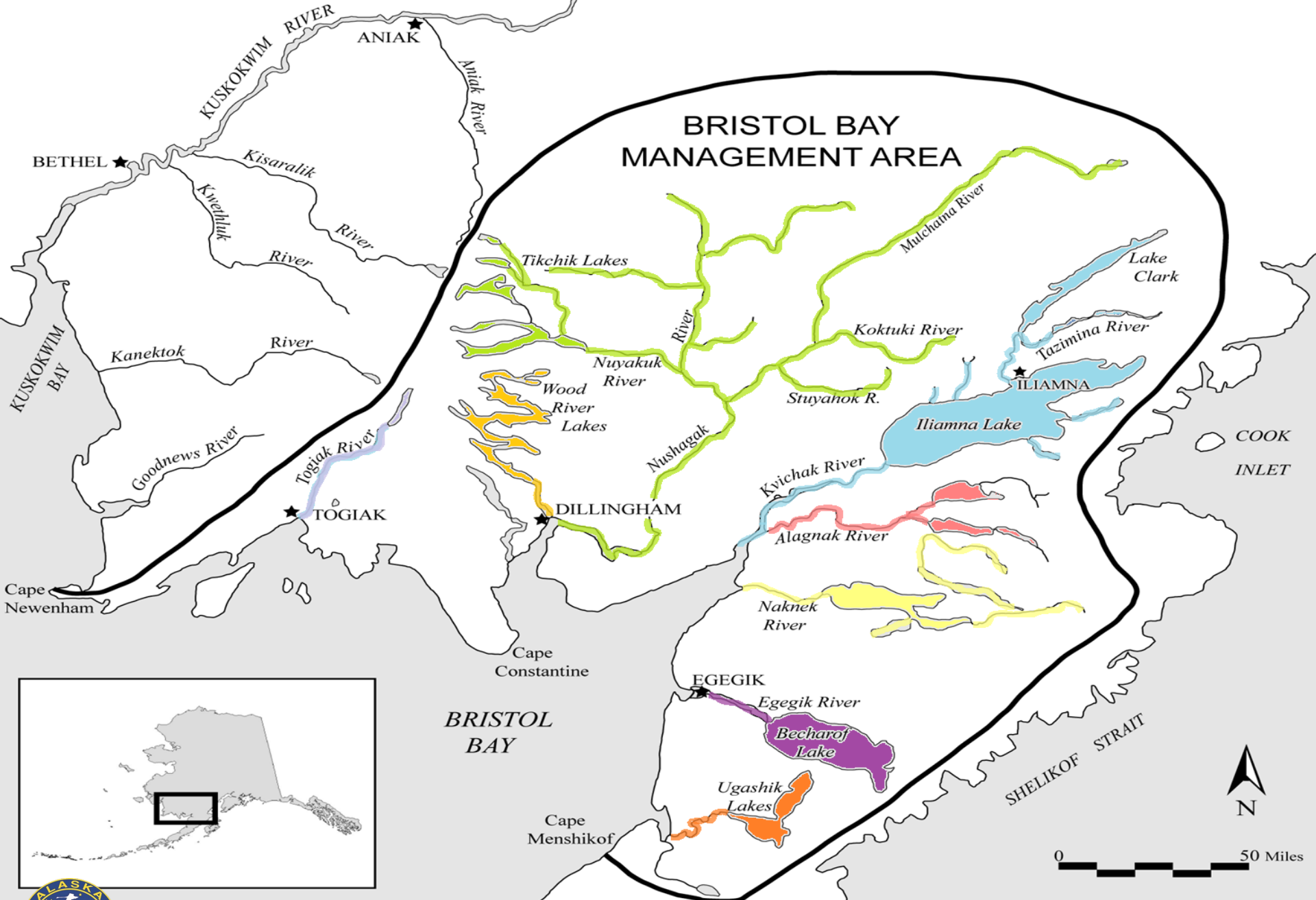
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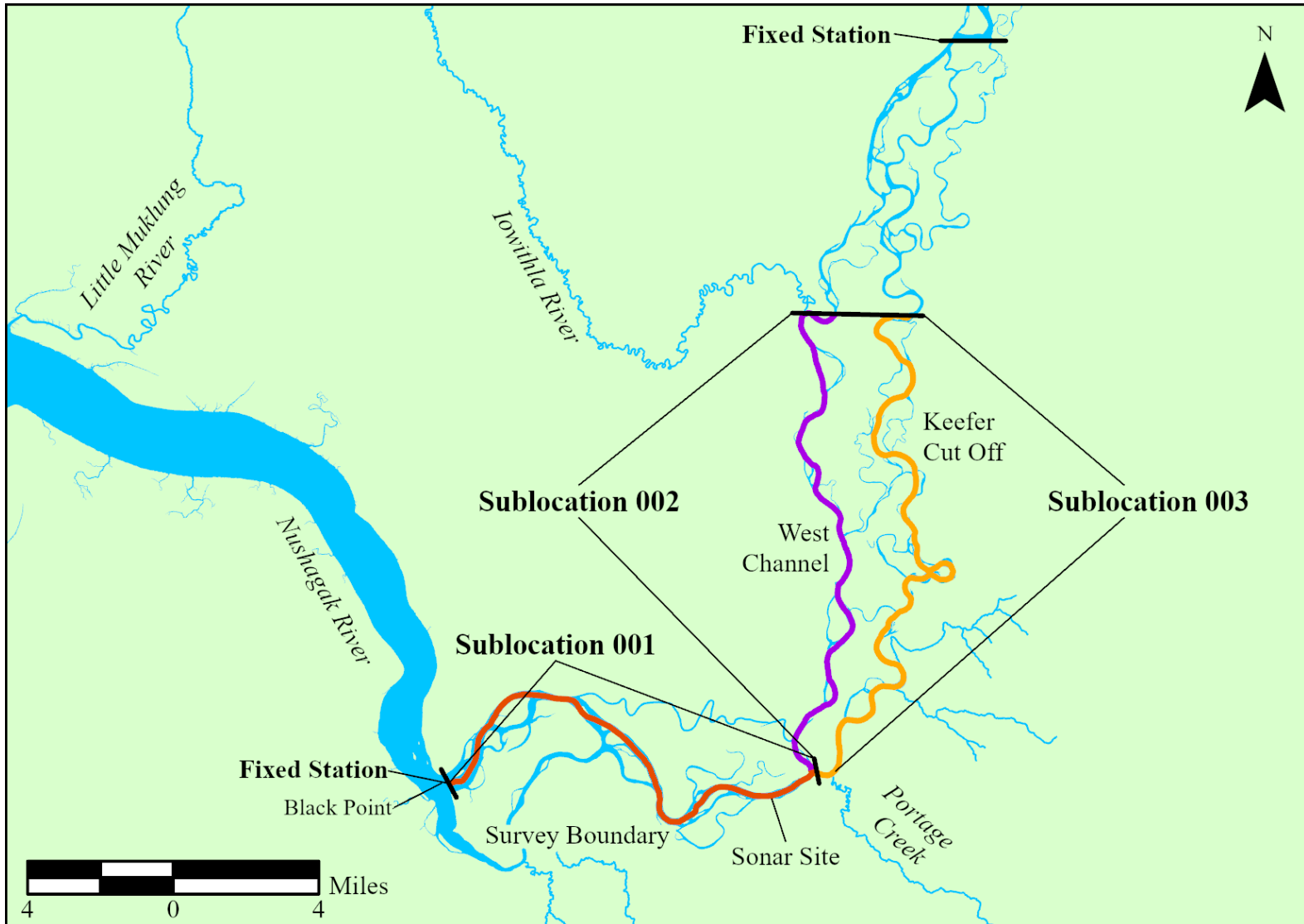
RC 3

Tab 8





# Study Area



# Background Information

## Previous Studies

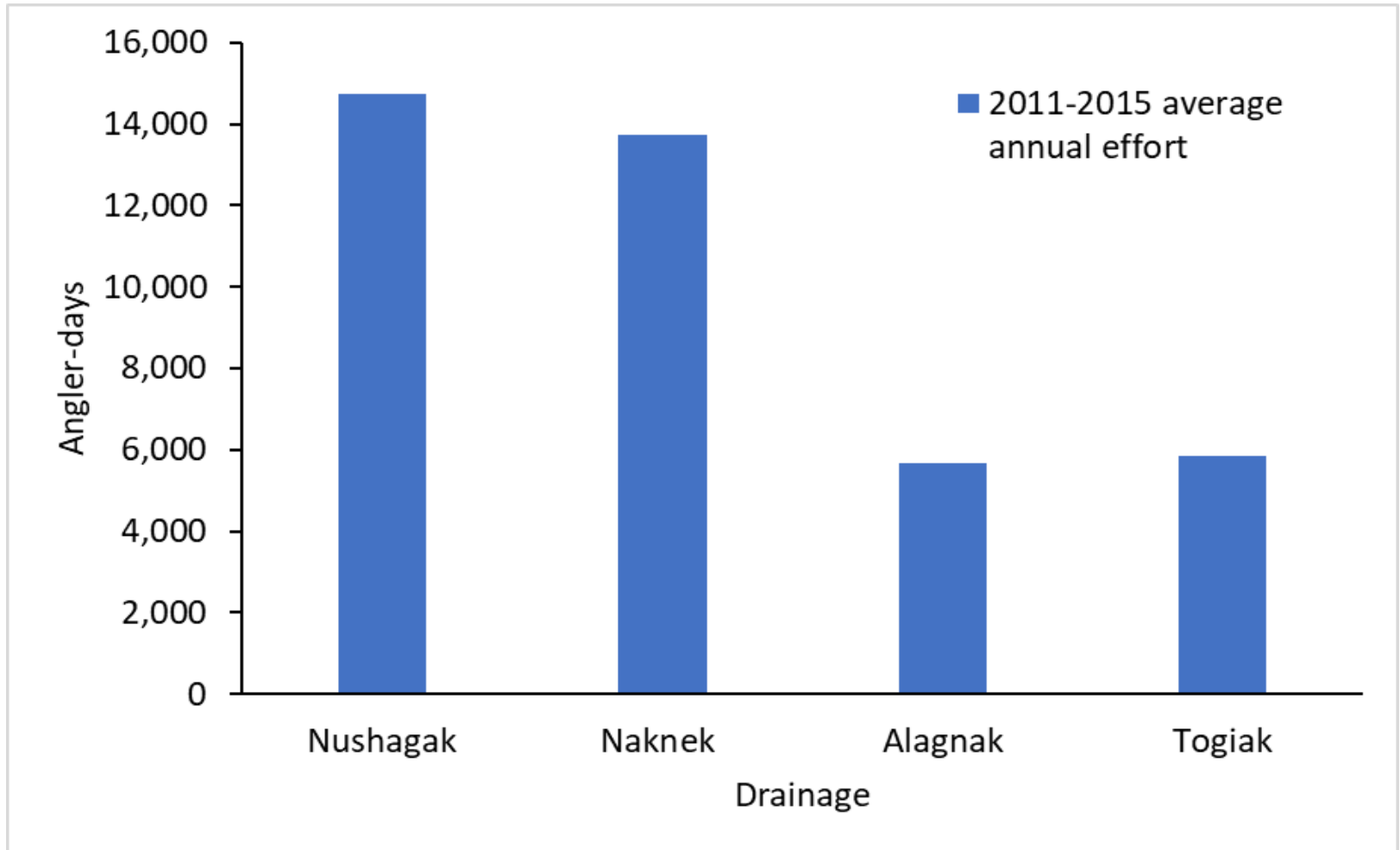
- Willamette '04 (12.2%)
- Kenai '91 (8.8% early & 5.9% late)

## Why Nushagak?

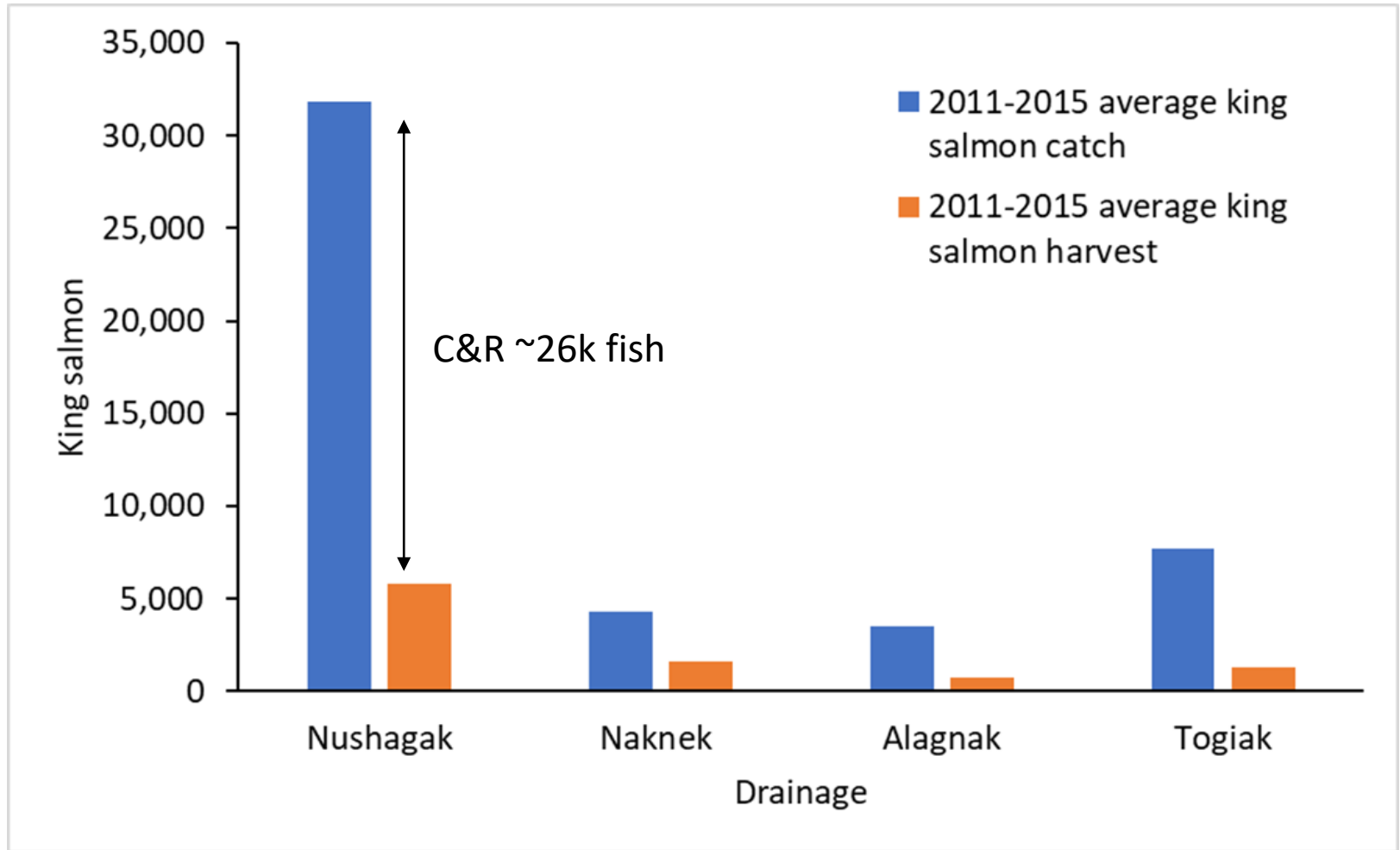
- Effort and Catch
- Management Implications



# Effort



# Catch and Harvest



# Objectives

## Primary

- Estimate short term (5d) mortality rate for king salmon  $\geq 500$ mm mid-eye to fork length caught and released in the lower Nushagak River.

## Secondary

- Estimate the effects of selected biological and sport fishery related variables.
- Estimate length and sex composition of king salmon sport caught in the lower Nushagak River.
- Examine all captured king salmon for previously applied marks.



# Project Design

## Replicate Sport Fishery

- Logbook, creel & harvest survey data
- Most common combinations of tackle & angling methods

## Radio Tag and Track

- 174 per year for 2 years
- 5 day survival
- Track movement via GPS

## Record Selected Variables

- Hook location, condition, river section





# Methods

## Radio Tags

- 90 day battery life
- Mortality signal (4 hours)

## Data Loggers & Receivers

- Aerial surveys
- Fixed stations
- Boat surveys

## Field Staff

- Four person crew 2017, six person crew 2018
- Guide & guide camp emulation



# Results

## 2017

- 109 tags deployed
- 8 total mortalities
- 7 mortalities within 5-day window
- 1 mortality at the boat

## 2018

- 209 tags deployed
- 13 total mortalities
- 8 mortalities within 5-day window
- 4 mortalities at the boat
- 1 mortality below lower fixed station receiver



# Management Implications

5-day Overall Survival Estimates: 2017, 2018 and Pooled Data			
Year	5-day Survival Estimate (%)	Lower 95% Bound	Upper 95% Bound
2017	92.7	85.8	96.3
2018	93.8	89.5	96.3
Pooled	93.4	90	95.6

## Estimated mortalities from catch and release

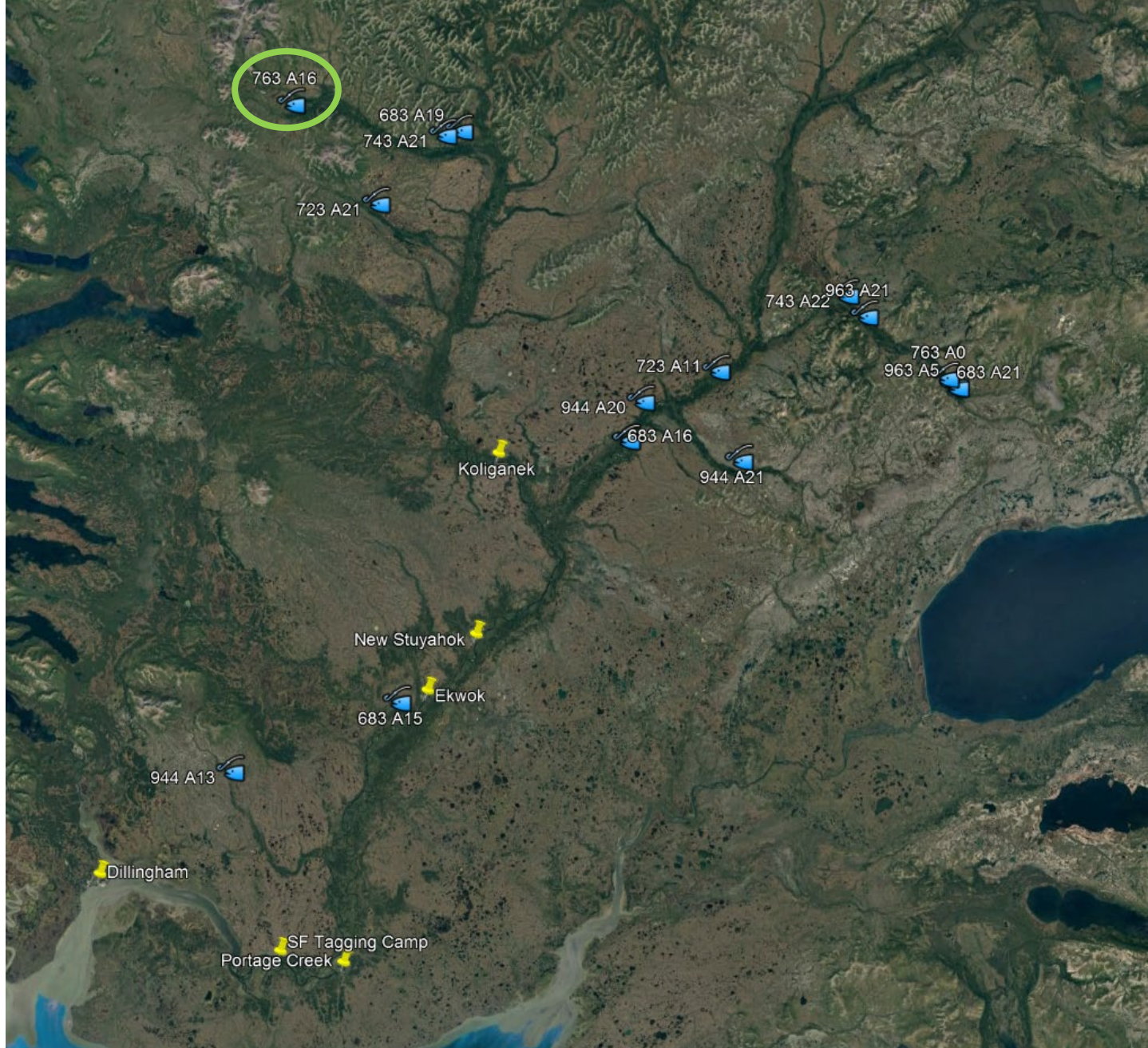
- Average annual catch-and-release mortality based on recent 5-year catch average = 1,553 fish.

## Use as a management tool

- Catch-and-release via E.O. in 2010, 2019, 2022.



# Likely Spawners (8/2017)



## Fish 763 A16

~140 miles traveled

Male

Fork length 560mm

Method: down trolling

Gear: Spin-n-glo (unbaited)

Landing time: 3:34

Handling time: 4:21

Hook location: 1 (upper jaw)

Bleeding: 0 (none)

Swimming away: 1 (some stress)

Overall condition: 1 (some slime loss, scales intact)



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